Finding of No Significant Impact
for the
Offsite Transportation of Certain
Low-level and Mixed Radioactive Waste
from the Savannah River Site
for Treatment and Disposal at
Commercial and Government Facilities

Agency: U. S. Department of Energy

Action: Finding of No Significant Impact

Summary: The Department of Energy (DOE) has prepared an environmental assessment (EA) (DOE/EA-1308) to analyze the potential environmental impacts associated with the proposed offsite transportation of certain low-level radioactive waste (LLW) and mixed (i.e., hazardous and radioactive) low-level radioactive waste (MLLW) from the Savannah River Site (SRS), located near Aiken, South Carolina. Based on the analyses in the EA, DOE has determined that the action is not a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969 (NEPA). Therefore, the preparation of an environmental impact statement (EIS) is not required, and DOE is issuing this Finding of No Significant Impact (FONSI).

Public Availability: Copies of the EA and FONSI or further information on the DOE NEPA process are available from:

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Background: At SRS, operations, waste management, environmental restoration, and decontamination and decommissioning activities generate a variety of LLW and MLLW streams each year. By definition, LLW is radioactive waste that is not classified as high-level waste, transuranic waste, or spent nuclear fuel, and does not contain waste designated as hazardous by either the Resource Conservation and Recovery Act (RCRA) or the Toxic Substances Control Act (TSCA). LLW management is subject to the provisions of the Atomic Energy Act, DOE Order 435.1, and the DOE manual accompanying that Order. LLW is categorized as either contact- or remote-handled, and

as alpha or nonalpha on the basis of the waste forms and levels of radioactivity present. Most LLW consists of relatively large volumes of waste materials contaminated with small amounts of radionuclides, such as contaminated equipment, protective clothing, paper, rags, packaging material, and solidified sludges. Most LLW contains short-lived radionuclides and generally can be handled without shielding or remote handling equipment. MLLW contains both hazardous waste subject to regulation under RCRA and LLW subject to regulations under the Atomic Energy Act. MLLW includes such materials as tritiated mercury, tritiated oil contaminated with mercury, other mercury-contaminated materials, radioactively contaminated solvents, radioactively contaminated polychlorinated biphenyls (PCBs), radioactively contaminated lead shielding, and equipment from the tritium facilities in H Area.

The proposed management of the five waste forms included in the EA associated with this FONSI was previously addressed in two different EISs prepared and issued by DOE: the Final EIS, Savannah River Site, Waste Management, DOE/EIS-0217 (SRWMEIS), and the Final Programmatic EIS for Managing Treatment, Storage and Disposal of Radioactive and Hazardous Waste, DOE/EIS-0200-F (WMPEIS). In the SRWMEIS, DOE's preferred alternative for managing these waste forms was through either shallow land or RCRA-licensed disposal at SRS. In addition, either onsite or offsite treatment preceded disposal for some specific wastes in four of the five general waste forms. However, treatment residuals were to be returned to SRS for onsite storage or disposal. DOE had decided to implement this option and issued a Record of Decision (ROD) on October 30, 1995. In the WMPEIS, these five waste forms were encompassed in the two broad waste types of LLW and MLLW for evaluation. DOE's preferred alternative consisted of minimum treatment of LLW although each site may perform additional treatment if cost effective. The preferred alternative for disposal of LLW was to continue to the extent practicable onsite disposal as well as selection of Hanford Site and Nevada Test Site as regional disposal locations. DOE's preferred alternative for MLLW treatment consisted of onsite and regional treatment at Hanford Site, Idaho National Engineering and Environmental Laboratory, Oak Ridge Reservation and SRS consistent with Site Treatment Plans. The preferred alternative for MLLW disposal consisted of two regional disposal sites, Hanford Site and Nevada Test Site. DOE decided to implement the preferred alternative and issued a ROD on February 25, 2000. The decisions did not preclude DOE's use of commercial treatment and disposal facilities, consistent with current DOE Orders and Policy.

While these two EISs addressed treatment and disposal of LLW and MLLW at SRS, the onsite treatment and disposal facilities for most of these five waste forms do not exist. For various reasons, the proposed projects that would have provided the facilities, such as new low-activity waste and RCRA disposal vaults, have been cancelled. Some of the reasons for cancellation include recognition of existing DOE complex capacity, inability to meet current South Carolina Department of Health and Environmental Control (SCDHEC) RCRA waste disposal facility requirements, and funding limitations. DOE's inability to meet South Carolina's waste disposal requirements is the primary problem, and it is not correctable. SRS does not have a naturally occurring confining clay layer of

sufficient thickness to meet South Carolina requirements for a RCRA disposal unit as defined in South Carolina Hazardous Waste Management Regulations R.61-104.IV.C.1.a. Because of this, DOE has no plans to construct and operate such facilities at SRS. Therefore, DOE is proposing to use offsite commercial and Government facilities for treatment and disposal of these wastes.

Purpose and Need for Agency Action: DOE needs a viable near-term treatment and disposal option for these five LLW and MLLW forms that are generated at SRS. DOE needs to take action in a cost-effective and timely manner because onsite treatment and disposal capabilities for these waste forms do not exist at SRS at this time and/or it is more beneficial to DOE to dispose of the waste at another location. In addition, these waste forms would comprise an estimated volume of approximately 136,057 cubic meters (4,804,282 cubic feet). If not dispositioned upon generation, storage of this volume of waste would likely exceed RCRA and TSCA regulatory limits. Storage without treatment would not be consistent with the agreements between DOE and the State of South Carolina concerning MLLW management under the SRS Site Treatment Plan that was developed pursuant to the Federal Facility Compliance Act of 1992. Violating these agreements could result in fines and penalties for DOE as well as suspension of the site's RCRA Permit.

Proposed Action: DOE proposes to transport, by rail or truck, certain SRS LLW and MLLW forms to commercial and Government facilities for treatment and disposal. Although the treatment and disposal operations at the commercial and Government facilities are beyond the scope of the EA, the Government facilities are separately covered through appropriate NEPA documentation. Additionally, DOE would ensure all commercial facilities are properly licensed to receive the radioactive material prior to shipment and perform reviews of the facility's operations. None of these wastes, or residuals or secondary waste generated during the offsite treatment, would be returned to SRS under the proposed action. The estimated volume that would be shipped under this proposed action on an annual basis would range from 5,664 to 12,744 cubic meters (200,000 to 450,000 cubic feet).

The shipping vendor would be responsible for providing the modes of transportation (either rail or truck), equipment, security and health and safety requirements to ship the waste from SRS. The shipping containers would be provided by either DOE or the vendor. SRS personnel would be responsible for loading the waste into the appropriate U. S. Department of Transportation (DOT)-approved shipping containers. The vendor would take custody of the packaged waste at the SRS staging area. DOE would ensure that external contamination to the containers leaving SRS does not exceed DOT limits. The vendors would be responsible for ensuring that all DOT and DOE regulations and Orders are met for LLW and MLLW shipments. The vendors would also be responsible for ensuring compliance with all Federal, State, and local licenses, permits, and other required documentation to treat and/or dispose of LLW and MLLW.

The proposed action would include the transportation of the LLW and MLLW to seven potential offsite-processing locations for treatment and disposal. The seven commercial or Government facilities located within a general area are grouped such that the calculations for six destinations cover the seven potential offsite-processing locations, as well as future/additional locations that are near the six destinations. The six destinations chosen are: 1) Idaho Falls, Idaho; 2) Eunice, New Mexico; 3) Mercury, Nevada; 4) Oak Ridge, Tennessee; 5) Clive, Utah; and 6) Richland, Washington. With the exception of Mercury, Nevada, and Idaho Falls, Idaho, all destination facilities are accessible by both rail and truck. No rail shipments are planned to Nevada, at this time. For shipments to Idaho Falls, Idaho, results are presented for two separate legs consisting of 1) rail from SRS to Pocatello, Idaho, and 2) truck from Pocatello to Idaho Falls, Idaho.

Although DOE-SR has cradle-to-grave responsibility for its wastes, the transportation of the treated waste from those facilities to the final disposal facility would be the responsibility of vendor. DOE does not evaluate transporting the treated waste from commercial treatment facilities to the final disposal facility in this EA. However, since the waste constituents would have been either immobilized, thermally treated, thermally encapsulated, solidified, amalgamated, volume reduced, or containerized at the commercial treatment facilities, and the radiation levels or hazard volumes of the waste have not been increased, the transportation impacts would be no greater than those that would result from transporting the untreated waste from SRS to final disposal facility, and those impacts are evaluated in this EA. The various commercial vendor facilities are accessible by either rail or truck. Each of these offsite facilities would be required by law to have in place all necessary U. S. Nuclear Regulatory Commission (NRC), State, and local licenses and/or permits to either treat or dispose of the waste forms in question. DOE would ensure the receiving facility is properly licensed prior to shipment of the waste. In addition it should be noted that in the case of transportation accidents, the Federal Government is ultimately responsible for the cleanup after the bond limit of the carrier is exceeded.

The facility's waste acceptance criteria are essential to the proper operation of the radiological waste treatment/disposal facility. SRS will comply with the facility's waste acceptance criteria through auditable waste characterization and certification activities. This would enable DOE Savannah River Operations Office and the facility’s host State to ensure that all safety, health physics/radiation monitoring procedures, Quality Assurance/Quality Control procedures, transportation procedures, volume reduction procedures, and laboratory procedures at the disposal facility would be met. Further, meeting the waste acceptance criteria for disposal of MLLW is driven by RCRA. These criteria must be met before these waste forms could be offered to any commercial or Government facility for final disposal. In the event that these criteria can’t be met for a specific volume of waste to be shipped, then those materials would remain at SRS until an alternative management option can be determined. In addition, the commercial facility's activities would be closely scrutinized by DOE, NRC, the U. S. Environmental Protection Agency, and State agencies that regulate the management of radiological and hazardous waste.

DOE Order 435.1, Radioactive Waste Management, and DOE Manual 435.1 (which describes how the Order is implemented) identify the requirements that DOE must follow and the controls and oversight that must be in place before DOE ships waste to a commercial facility for treatment, storage or disposal. In making a decision to use a commercial facility for managing DOE radioactive waste, the DOE Field Element Manager must ensure that the decision is protective of the public and the environment. This responsibility is effected by ensuring the following: (1) the commercial facility is properly licensed and/or permitted; (2) the facility complies with applicable regulations; and (3) the facility has an acceptable history of operational and regulatory performance. Based on the characteristics of the waste that is being considered for transfer to the commercial facility, a review would be conducted of the licenses and permits held by the facility to determine if they provide appropriate coverage for management of the waste. This would be accomplished through a reading of the licenses and permits and through discussions with the issuing authority (Federal, State, or local licensing/permitting authority). This review would confirm that the facility is authorized to receive the radionuclides in the waste to be transferred, and, if the waste contains constituents subject to RCRA or TSCA, that the facility has the appropriate authorization to receive and manage those constituents. Discussions with regulatory authorities and reviews of inspection reports would also be used to determine whether the facility has a history of acceptable operational and regulatory performance. Once a determination has been made by a DOE organization that a commercial facility has an acceptable operational and regulatory history, this determination can be used by other DOE organizations, e.g., a DOE organization can use the results of a review performed by another DOE organization or DOE contractor in making a decision on the acceptability of the commercial facility's performance. However, it is the responsibility of a DOE organization using a commercial facility to ensure, on an annual basis, that the facility is maintaining an acceptable performance record, either through their own review or that conducted by another DOE organization or contractor. Documentation of the results of the evaluation of regulatory compliance and acceptable operational history as discussed above is adequate for showing that the use of the commercial facility will be protective of public health and the environment.

If the proposed action were selected, an amended ROD would have to be issued by DOE for the SRWMEIS. The decision in the ROD would be to further implement the Moderate Treatment Configuration Alternative through the offsite transportation of certain LLW and MLLW for treatment and/or final disposal at commercial and Government facilities.

Alternatives: In accordance with NEPA regulations, DOE examined the following alternatives to the proposed action: (1) no action, continue to store these waste forms at SRS; and (2) construct and operate onsite treatment and disposal facilities. The no-action alternative is to continue to store these waste forms onsite. The impacts associated with the proposed action would not occur. DOE would not provide onsite treatment or disposal capabilities for these waste forms. Storage space and disposal capacity needs

would increase each year as waste was generated. Environmental restoration and decontamination and decommissioning projects at SRS would have to be postponed because of lack of available storage space and treatment and disposal capacity to handle the waste generated by these activities. If not dispositioned upon generation, storage of these waste forms could also result in violations of RCRA and TSCA regulatory limits. The potential outcome of this could be significant fines and penalties for SRS. Also, the average costs associated with the proper management of stored waste is approximately $45 per 1.0 cubic meter (35.3 cubic feet) per year. These costs would be in addition to the ultimate treatment and/or disposal costs for these SRS waste forms.

The other alternative to the proposed action would be to construct and operate onsite treatment and disposal facilities for these waste forms. This would include the construction and operation of the following new facilities: a non-alpha vitrification facility, a containment building, 3 low-activity waste disposal vaults, and 26 RCRA disposal vaults. The environmental impacts and administrative decisions associated with these facilities were addressed in other NEPA documents. However, expenditure of capital funds for new treatment and disposal facilities while offsite capacity exists for these waste forms is not a cost-effective solution. The RCRA disposal vaults could not be built onsite to meet current SCDHEC requirements for such facilities. Therefore, given the current funding limitations and alternatives available for these waste forms, DOE does not plan to build the previously proposed treatment and disposal facilities.

Environmental Impacts: The EA did not assess local impacts associated with the ongoing operation of an already-licensed offsite vendor facility proposed to receive DOE waste for treatment or disposal. DOE's proposed waste load associated with this ongoing operation will be a small part of that facility's throughput. The facility would operate well within its established standards and the vendor's part of this proposal is of low potential for significant impacts. No impacts to human health and worker safety would be expected to result from the loading operations portion of the proposed action. The human population exposures resulting from the proposed offsite shipments would be several orders of magnitude less than naturally occurring background radiation exposure to the same population; thus, no impacts are expected on human health. Based on the analysis of non-radiological accident scenarios, the proposed action would be expected to result in about nine non-fatal accidents and no fatal accidents. No latent cancer fatalities would be expected from the proposed action. A bounding accident scenario involving the release of the entire contents of a tanker truck carrying liquid LLW into streams of various sizes would result in observable deleterious impacts to biota in the smallest streams (10 cubic feet per second flow or less). However, based on the fact that there would only be ten such shipments made under the proposed action, no accidents of this type would be expected to occur. There would be little to no potential for a disproportionately high adverse impact to either poor or minority communities as a result of the proposed action.

Determination: Based on the information and analyses in the EA (DOE/EA-1308), and after careful consideration of all comments, DOE has determined that the proposed offsite transportation of certain LLW and MLLW from the SRS for treatment and disposal at commercial and Government facilities does not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of NEPA. Therefore, an EIS is not required and DOE is issuing this FONSI.

Signed in Aiken, South Carolina, this 15th day of FEB, 2001.

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